



CONVENIENCE IS POWER

# ENGINEERING CAPABILITIES

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# Engineering Capabilities

## Introduction

The Engineering Team at Summit Power are all highly trained professionals with decades of experience in the Energy Sectors. We offer specialist skills in the fields of Substation, Busbar & Fittings, Transmission Line Hardware and Transmission Towers to ensure you get unrivalled engineering value, service and support. We meet the highest standards of safety and quality.



## Specialising in four key areas

### 1. Third Party Auditing & Advisory Services

- ▶ Review transmission line design concepts
- ▶ Review transmission tower design concepts
- ▶ Audit final transmission line designs
- ▶ Audit final transmission tower designs
- ▶ Audit Supplier factories & testing facilities
- ▶ Audit testing policies & procedures
- ▶ Audit raw material
- ▶ Material take-off from certified plans

### 2. Substation Busbar & Fittings

- ▶ Busbar engineering
- ▶ Component engineering
- ▶ Item creation
- ▶ Busbar design
- ▶ Material take-off from certified plans

### 3. Transmission Line Hardware

- ▶ Transmission line hardware engineering
- ▶ Item creation
- ▶ Material take-off from certified plans

### 4. Transmission Towers

- ▶ Tower design & engineering
- ▶ Tower planning
- ▶ Tower supplier assessment reports
- ▶ Summit Power offer the following service: Physical presence at the supplier manufacturing facility throughout the process, from inspecting raw materials, ensuring strict policies and procedures are being adhered to, QA inspections throughout the process and overseeing the packaging and shipment of transmission towers.



## Our Engineering Team



### Milind Knot - Chartered Engineer

[milind.knot@summitpower.com.au](mailto:milind.knot@summitpower.com.au)

### Senior Transmission & Substation Engineer

Milind Khot, PhD, PEng, CEng (Aus), a distinguished and accomplished professional, brings over 44 years of invaluable expertise to the realm of engineering. As a registered Chartered Engineer in Australia, Milind is an expert specialist in the domain of extra high voltage (EHV) and ultra-high voltage (UHV) transmission lines and substations.

#### Summary

##### Years of Experience

- ▶ 44+

##### Industries

- ▶ Transmission & distribution

##### Types of Facilities

- ▶ Transmission lines and Substations up to 735 kV

##### Areas of Expertise

- ▶ Conceptual & detailed design - EHV Lines and Substations
- ▶ EHV cables (U/G & Submarine)
- ▶ Project & engineering management
- ▶ Manufacturing
- ▶ Quality management

#### Qualifications

##### Education

- ▶ BE Electrical
- ▶ High Voltage Engineering
- ▶ College of Engineering (University of Pune), India, 1979

##### Registrations / Certifications

- ▶ Professional Engineer in BC, AB and NL, Canada
- ▶ Chartered Engineer, Australia
- ▶ Chartered Engineer, India

##### Software Skills

- ▶ PLS-CADD
- ▶ PLS-TOWER
- ▶ CDEGS, MathCAD
- ▶ Microsoft Certified Software Developer (MCSD)

##### Languages

- ▶ English
- ▶ Hindi
- ▶ Marathi
- ▶ Gujarati



## Experience - Australia

- ▶ Engineering Director (execution) for Stockyard Hill, the largest wind farm in the Southern Hemisphere in VIC, Australia. This included involvement in the Employers Requirements and managing multiple engineering teams across the world to execute 4 substations of 132 kV and one transmission line to evacuate 530 MW of generation.
- ▶ Engineering Specialist and Technical Advisor for extra/ultra-high voltage wind, solar and transmission and substation projects. This included:
  - ▶ EPC Bid engineering of Cattle Hill wind farm in Tasmania Australia
  - ▶ EPC Bid engineering of the Port Augusta wind/solar hybrid farm (370 MW in South Australia)
  - ▶ EPC Bid engineering of the Kaban wind farm in New South Wales
  - ▶ EPC Bid engineering of the Lal Lal wind farm in South Australia
  - ▶ A confidential 275 kV transmission line in South Australia – grid connection to the hybrid pumped storage and solar facility
  - ▶ A confidential 275 kV substation in Queensland Australia for a solar facility evacuating power to the grid

## Experience - Global

Consultant and Independent Reviewer for the 330 kV, 680 km double circuit transmission project for Secure Energy JV's project in NSW Australia. Lead Engineering Reviewer of the Kimal – Lo Aguirre +/- 600 kV HVDC transmission line, 1470 km, bipole.

Expert Opinion on the investigation into the oil-filled 345 kV submarine cable failure and oil leak into the Hudson River 2016, New Jersey USA.

Leading the feasibility design of Total Eren's Magallanes H2 project in Chile – 8 transmission lines of 500 kV and 10 substations of 500 kV to disburse 10,000 MW of wind power to produce green hydrogen.

Leading the feasibility design of a green hydrogen project in south Chile disbursing 3000 MW of wind power, involving a 220 kV transmission system and several substations.

Leading the 735 kV Insulator Replacement Project study for Nalcor, NL, including the implementation of modern equivalents to improve reliability, reduce cost and ease of construction.

Leading the due diligence and cost estimate on the Pickle Lake transmission line project in North Ontario comprising 1350 km of transmission and 24 substations.

Leading the feasibility study and engineering of the power system to supply a large LNG plant in Canada. This

included 287 kV transmission lines and augmentation of a 500 kV substation.

Resident engineer for the construction of BC Hydro's Telkwa relocation project – 500 kV transmission line.

## Publications & Presentations

Presented a paper at the Energy Networks Australia EMF Advisory Group conference titled "EMF Reduction Measures in New Zealand", 2008. (<http://www.ena.asn.au/udocs/7MKhotEMFReduction.pdf>)

Published and presented a paper titled, "Use of Probabilistic temperatures in the Calculation of Transmission Line Ratings using PLS-CADD", Presented at EEA Annual Conference & Trade Exhibition, June 17-19 2004, Christchurch, NZ. (<http://www.powline.com/probabilistic.pdf>). Also published on the EEA website.

Presented a paper at the Power Australia conference on titled "Probabilistic Optimization of Transmission Infrastructure", Sydney, Australia 2018

## Awards & Scholarships

2007 Awarded a Certificate of Appreciation by Standards Australia for contribution in developing the joint Australia- New Zealand Standard AS/NZS 1768: 2007 titled "Lightning Protection".

2004 Awarded a Certificate of Merit for the role in developing the New Zealand Standard NZS 6869: 2004 for Radio Frequency Interference from power lines.

## Committees

2003-2010 - Member of the Standards Australia committee on Lightning Protection AS/NZS 1768. Also, participating member on CIGRE` committees (WG36)

2003-2010 - Author and Member of the Standards New Zealand committee on Radio Frequency Interference NZS 6869: 2004.

2006-2010 - Co-member of the Standards Australia committee developing a comprehensive standard on transmission line design (AS/NZS 7000:2010) to replace HB C(b)1, including a detailed handbook.

2003-2009 - Ex-Member of the EMF Advisory Group of Energy Networks Association Australia.

2003-2009 - Ex-Member of the Inter-agency committee of the Ministry of Health New Zealand on EMF Health Effects.

2003 - 2009 - Ex-Member/Reviewer of the ARPANSA committee, Australia, evaluating and creating the standard for health effects of Electric & Magnetic Fields.

2010 - 2012 - Ex-Member of IEEE – Towers, Poles and Conductors committee.

## Our Engineering Team



**Muhammad Shahzad - Senior Engineer**  
*muhammad.shahzad@summitpower.com.au*

### Senior Engineer

With a strong track record of delivering positive outcomes for clients, Muhammad is a highly skilled engineer who possesses a deep understanding of industry-specific standards and regulations. Specialising in providing comprehensive testing and certification that not only meet but exceed these standards. Delivering precision, quality, and compliance in every product we offer.

#### Summary

##### Years of Experience

- ▶ 16+

##### Industries

- ▶ Transmission & distribution

##### Types of Facilities

- ▶ Transmission lines and Substations up to 500 kV

##### Areas of Expertise

- ▶ Conceptual & detailed design - EHV Lines and Substations
- ▶ Project & engineering management
- ▶ Manufacturing
- ▶ Quality management
- ▶ Line Material creation & design

#### Qualifications

##### Education

- ▶ B.Sc Electrical Engineering UET Lahore Pakistan
- ▶ High Voltage Engineering
- ▶ MIEAUST - CPEng

##### Registrations / Certifications

- ▶ Engineer - Australia
- ▶ Project Management Professional (PMP) PMI(USA)
- ▶ Topcon Survey Tools Training
- ▶ VESI Certified ESI Worker #3795157

##### Software Skills

- ▶ PLS CADD Trainings Sharjah, UAE-Perline USA
- ▶ PLS CADD Johannesburg, South Africa - Powerline USA
- ▶ Microsoft Certified Software Developer

##### Languages

- ▶ English
- ▶ Urdu
- ▶ Punjabi



## Experience - Australia

- ▶ IFR and IFC drawings review issued by the Client for 132, 200 and 500kV transmission lines.
- ▶ Part of the tendering process for the 500KV Cut-Ins works at the Mortlake Power Station.
- ▶ Working with Project manager to develop, support, and manage key strategic initiatives, from the concept planning to the
- ▶ execution phase, maintaining good working relationship with key project stakeholders i.e., Council, subcontractors, delivery
- ▶ partners, vendors, suppliers, AEMO, NSP and Landowners, Advisors (Legal, Technical) etc
- ▶ Provide practical inputs to designs, scope of works and leads project delivery methodology.
- ▶ Lead and manage the Procurement planning process including selection of technologies /equipment and obtained timely
- ▶ approvals from project board to proceed with purchase of materials and consumables like Mono steel poles, Transmission
- ▶ Towers, Transformers, Conductors, OPGWs, Line Hardware, Primary and Secondary equipment on incoterms basis within
- ▶ agreed delivery times.
- ▶ Management the subcontractors, cross functional project team and project site team and provide coordination at design,
- ▶ procurement, construction, commissioning, and delivery stages. Inspire the site team to work collaboratively and take
- ▶ personal responsibility for delivering the project.
- ▶ Calculation of B.O.M at tender stage and procurement stage for 132, 220 and 500kV lines.
- ▶ Engineering design and profiling of overhead lines for distribution networks (415V- 66kV) for different Clients across
- ▶ Australia.
- ▶ Ausnet, Powercore/Citipower, Ergon Energy, WesternPower
- ▶ Project design packages including Design reports, SIDs, BOQs, Design Checklists and DQM Quotes etc.
- ▶ Site Survey, Cable and OH route selection as per DBYD assets.
- ▶ Sag and Tension Calculations, Stringing charts, electrical clearance drawings and checks on PLSCADD.
- ▶ I have been a part of team delivered ECI design

- studies for AusNet. Including conductor sizing, economical conductor
- ▶ selection NPV analysis, corona study, Insulator selection. Meeting the requirement of SDM 8 and AS/ NZ 7000 with other
- ▶ related standards.
- ▶ Transmission line route selection, Plan and Profile drawings preparations on PLS CADD.
- ▶ Sag and Tension Calculations, Stringing charts.
- ▶ Existing Pole analysis and new poles designs PLS POLE.
- ▶ Meeting the clearance requirements according to AS/NZS 7000 and Endeavour energy's distribution standards.

## Experience - Global

- ▶ NPCC (National Power Construction Corporation), Saudi Arabia - Direct the execution, planning, design, engineering,
- ▶ procurement, cost, and scheduling and construction activities by coordinating efforts of internal departments, project
- ▶ teams and external consultants
- ▶ DAR Engineering, Riyadh, Saudi Arabia -Calculations of Bill of quantities for towers, poles, Conductor, Spacers, Insulators,
- ▶ Hardware fittings, OPGW, Vibration dampers and accessories.
- ▶ Designed several overhead Double circuit AC transmission line of 380KV, 132KV, 115KV, 110KV, 33KV and 13.8KV using
- ▶ PLSCADD.
- ▶ Coordination with all stakeholders at all stage during life cycle of projects.
- ▶ Problem solving in engineering standards and methods, and solve underlying problems in processes or procedures.
- ▶ RFQs and preparation of price comparisons to select the best supplier of materials.
- ▶ Supervision of Site activities Civil and Electrical as per approved drawings.
- ▶ Creation and sign off ITPs and ITCs for the projects as part of quality controls.
- ▶ Supervision of Site staff as per HSE requirement.
- ▶ Look after Cultural Heritage and Native vegetation as per client's specification and marking as no go zone.
- ▶ Following up with material suppliers for on time deliveries and quality checks against approved design.

## Our Engineering Team



**Augusto Tortorella - Senior Engineer**  
*augusto.tortorella@summitpower.com.au*

### Senior Substation Engineer

Augusto brings forth a wealth of experience exceeding 18 years within the energy sector, specialising in project management and business development. His expertise lies in power transmission, encompassing Transmission Lines and Substations, as well as renewable energy projects such as Onshore & Offshore Wind and Solar Power. Augmented by a steadfast commitment to achieving optimal results, he possesses a robust foundation in team management and strategic planning. Augusto's international exposure spans business development activities across the globe, showcasing a proven track record in the advancement of projects related to power transmission.

### Summary

#### Years of Experience

- ▶ 17+

#### Industries

- ▶ Transmission & distribution

#### Types of Facilities

- ▶ Transmission lines and substations up to 500 kV

#### Areas of Expertise

- ▶ Conceptual & detailed design -
- ▶ EHV Lines and Substations
- ▶ Project & engineering management
- ▶ Tendering
- ▶ Application engineering manufacturing
- ▶ Quality management
- ▶ Line material creation & design

### Qualifications

#### Education

- ▶ MBA (Master Business Administration) in Business Management FGV - Getúlio Vargas Foundation Sep 2012
- ▶ Bachelor of Electrical Engineering Rio Grande do Sul Federal University - UFRGS Dec 2007

#### Registrations / Certifications

- ▶ Advanced English Language Course
- ▶ Electrical Safety, Basic and Advance Modules
- ▶ Training in Project Management and Preparation for PMP and CAPM Certification
- ▶ Engineering Works and Services in Public Administration - The Inspection of Contracts
- ▶ Protecting Power Systems for Engineers at SEL University
- ▶ Enhancement of Electrical Projects at SEL University
- ▶ Generation System Protection at SEL University
- ▶ Global economic and business experience, at the GLOBE Program

#### Software Skills

- ▶ Microsoft Office
- ▶ MS Project
- ▶ Primavera
- ▶ Salesforce
- ▶ Autocad

#### Languages

- ▶ Portuguese
- ▶ English
- ▶ Spanish
- ▶ Italian
- ▶ Mandarin





## Experience - Global

- ▶ Developed and coordinated the application engineering work for technical and commercial proposals for Power Generation of Wind and Solar farms, and Transmission biddings (69kV to 800kV) of Substations, Transmission Lines, HVDC Converter Stations and FACTS.
- ▶ Have developed different technical solutions for generation and transmission projects, including layout and technical inputs definition, cost calculations, planning and delivery model.
- ▶ Have coordinated tenders in different South America countries, managing local teams and subcontractors.

### **CEEE-GT - State Electric Energy Transmission Co., Porto Alegre - RS - Substation and Transmission Lines Manager Jun 2011 - Oct 2014**

- ▶ Initiated at the company as Senior Engineer for high voltage substation project management, design review and equipment technical specification preparation;
- ▶ After a year of work, have been promoted to manage the department of Substation and Transmission Lines Construction, with the following responsibilities
  - ▶ Conceive and lead the implementation of the Project Management Office (PMO);
  - ▶ Coordinate the contract management team;
  - ▶ Manage all works and service providers contracts, leading the power transmission expansion;
  - ▶ Establish work routines, and implement strategic planning.

### **WEG Equipamentos Elétricos S.A., Gravataí RS - Project Manager Jun 2006 - Dec 2010**

- ▶ Project Management of high voltage substations and EPC Projects;
- ▶ Analysis and technical specification of equipment for application in high voltage power substations.
- ▶ Procurement of materials and high voltage equipment;
- ▶ Participation as an inspector in tests of high voltage equipment, such as instrument transformers, power transformers, electrical panels, disconnect switches, etc.;
- ▶ Also participated as a field engineer (site manager).

## Achievements

- ▶ Developed the substation budget technique of SEPCO1's commercial department, improving the assertiveness of the proposals and reducing the project cost
- ▶ Directly responsible at SEPCO1 for the budgeting and negotiation of EPC contracts, in amounts greater than \$200 million dollars.
- ▶ At CEEE-GT: Conceived and led the implementation of the Project Management Office (PMO) as a key resource to standardize project-related governance and facilitate the sharing of resources, tools and techniques. After its completion was noticed a 95% reduction in all project delays.
- ▶ Have more than 12 years of project management experience for power transmission and renewable energy projects, planning, controlling

## Our Engineering Team



**Alex Sales - Senior Engineer**  
*alex.sales@summitpower.com.au*

### Senior Substation Engineer

Alexandre has over 10 years' experience in the energy sector, acting in several areas such as: Works, projects, supplies, contracts and budgets for Substations, LT and Solar Plants up to the voltage class of 500kV in several segments (Wind, solar, hydroelectric and transmission). With solid international experience in negotiations and Diligence of equipment, materials and solutions for High Voltage.

#### Summary

##### Years of Experience

- ▶ 10+

##### Industries

- ▶ Transmission & distribution

##### Types of Facilities

- ▶ Transmission lines and substations up to 500 kV

##### Areas of Expertise

- ▶ Conceptual & detailed design -
- ▶ EHV Lines and Substations
- ▶ Project & engineering management
- ▶ Tendering
- ▶ Application engineering manufacturing
- ▶ Quality management
- ▶ Line material creation & design

#### Qualifications

##### Education

- ▶ Specialization in Electrical Energy Transmission and Distribution - Pontifical Catholic University of Minas Gerais - PUC-MINAS (December/2018).
- ▶ Master Engineering in Industrial Project Engineering - Pontifical Catholic University of Minas Gerais - PUCMINAS (August 2016).
- ▶ Graduated in Electrical Engineering - Pontifical Catholic University of Minas Gerais - PUC-MINAS (July-2014).

##### Registrations / Certifications

- ▶ High Voltage Equipment Course - Sieyuan Factory - Shanghai - China
- ▶ High Voltage Equipment Operation and Maintenance Course - Sieyuan Electric - China 2019
- ▶ DELE - Diploma in Español como Lengua Extranjera - Level C1 2017 & B2 2016
  - ▶ Interpretation of the ISO 9001 Std - Verde Ghaia;
  - ▶ Interpretation of the ISO 14001 Std - Verde Ghaia;
  - ▶ Interpretation of Std OHSAS 18001 - Verde Ghaia;
- ▶ NR-10 - Basic - EngeHall; 2015
- ▶ NR-10 - Complementary - Safety in the Electric Power System - EngeHall; Technical Workshop - "Damping System, Substation, Electrical Connections and Grounding" - Burndy 2015
- ▶ Grounding Systems Course, design, construction, measurement and maintenance - ABNT - São Paulo. 2013

##### Software Skills

- ▶ Windows, Word, Excel, PowerPoint
- ▶ MS Project
- ▶ MicroStation
- ▶ Autocad 2D, 3D and 3D Max

##### Languages

- ▶ English
- ▶ Spanish
- ▶ Portuguese



## Experience - Australia

- ▶ Financial analysis of the contract, verification of the financial flow of the contract, paying attention to the critical paths and proposing solutions to them;
- ▶ Analysis of the physical progress of the contract, verifying solutions and possible risks to be mitigated in their progress;
- ▶ Weekly follow-up of the schedule with the client;
- ▶ Monitoring of projects and proposals for improvements;
- ▶ Elaboration/Monitoring of the Labor Histogram. Promoting optimization of the same within the various works of the contracts;
- ▶ Interface with the other departments of the company, always looking for solutions and methods that optimize the costs of the works;
- ▶ Management of the supply of supplies for the works (all segments), acting in negotiations to target the proposed target in budgets;
- ▶ Diligence of purchases, following along with the manufacturers, supply chain management.

## Experience - Global

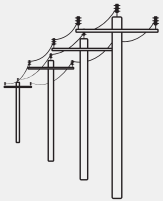
- ▶ Project Manager of the Owner's Engineering of Contracts involving SE's and Solar Plants, performing the following activities:
- ▶ Bidding Coordination for Large Photovoltaic Plants;
- ▶ Technical and commercial analysis of supplier proposals;
- ▶ Weekly monitoring of the development of the contract with both the customer and the supplier;
- ▶ Interlocution with ONS for CCI and CCT contracts;
- ▶ Interlocution with Accessed Transmitter of the enterprise for approval of projects and CCT;
- ▶ Approval of measurements from suppliers;
- ▶ Analysis of contractual claims;
- ▶ Physical-financial schedule analysis;
- ▶ Due Diligence of the project;
- ▶ CAPEX analysis;
- ▶ Monitoring of projects and proposals for improvements;
- ▶ Contract manager of the work LOTE Q – EDP – ANEEL Auction 2015/2, performing the following activities
- ▶ Elaboration of claims referring to the analysis of items outside the contracted scope, additional deadlines and analysis of costs above budget;
- ▶ Elaboration of the physical-financial schedule, always respecting the budgeted costs and the deadline for carrying out the activities.
- ▶ Monitoring of health, safety and environment (SSMA) activities, coordinating the teams to prepare reports and conclude nonconformities pointed out.
- ▶ Elaboration of the S curve of the contract, evaluating trends and preparing action plans to mitigate possible delays;
- ▶ Financial analysis of the contract, verification of the financial flow of the contract, paying attention to the critical paths and proposing solutions to them;
- ▶ Analysis of the physical progress of the contract, verifying solutions and possible risks to be mitigated in their progress;
- ▶ Monitoring of projects and proposals for improvements;
- ▶ Elaboration/Monitoring of the Labor Histogram. Promoting optimization of the same within the various works of the

contracts;

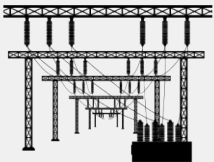
- ▶ Coordination of activities with the company's departments, always seeking to meet the demands of the contract within the proposed deadlines and budget;
- ▶ Coordination of the budget team for ANEEL auctions: Survey of quantitative, preagreements, CAPEX and OPEX - Winner of Lot 2 ANEEL Auction 2019/2;
- ▶ Management of contracts in the area of Substations, acting in the supply management of supplies, projects and work;
- ▶ International negotiations involving primary high and extra high voltage equipment (China and Argentina);
- ▶ Negotiation with suppliers, service providers and carriers, analyzing proposals, updating judgment maps and negotiating better supply conditions, price and delivery time, focusing on the best cost/benefit for contracts;
- ▶ Material purchase planning, according to manufacturing schedules to meet contracts and end customers
- ▶ Expediting international supplies, acting in the manufacturing stages, schedule monitoring, inspection and shipment;
- ▶ Participation in the supplier development and qualification project, identifying and qualifying new and old suppliers, through technical / commercial visits to their facilities, verifying their quality system, in accordance with ISO 9000, 9001 and 9002 standards, ensuring due supply to the company.
- ▶ Specification of Insulator Chains and Fixation of PR cables;
- ▶ Electrical and Mechanical Dimensioning of Busbars;
- ▶ Specification of medium, high and extra high voltage equipment;
- ▶ Equipment installation;
- ▶ Dimensioning of ducts and passage boxes;
- ▶ Development of grounding system using SE Ground software;
- ▶ SPDA;
- ▶ Lighting system in patios and substation access areas;
- ▶ Lighting system in buildings such as Command Houses, Guardhouses and GMC's;
- ▶ Grounding system in command houses;
- ▶ Grounding of GIS-type substations;
- ▶ Specification of materials for connecting equipment and busbars;
- ▶ Grounding System for SVC;
- ▶ Power Flow Studies in the Electrical System;
- ▶ Power Flow Studies of SE Busbars;
- ▶ Studies of Energization of Transformers and LT's;
- ▶ Substation Project Planning in MS Project;



TRANSMISSION



DISTRIBUTION



SUBSTATION



SAFETY MARKERS



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